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Bergen County has a strong economy and an unemployment rate less than the State average. Hurricane Floyd destroyed 71 Bergen County businesses, 195 received major damage, 137 received minor damage, and 466 were affected. Damages totaled \$55 million in business losses for the county, according to the Bergen County EMC.

In Lodi Borough, direct losses to revenue payroll and structural property were negligible compared to annual averages. Long-term losses, however, could be more substantial if a significant number of businesses fail despite their attempts to reopen. The Borough of Lodi should work with the State of New Jersey and FEMA to implement structural and nonstructural flood mitigation efforts and promote disaster-resistant development.

4.1 Pre-Disaster Conditions

4.1.1 Primary Industries and Employment

The pre-disaster economy of Bergen County, including Lodi Borough, can be characterized as healthy, based upon available employment and income data. Average 1998 unemployment for the county was 3.6 percent, which is less than the State's 4.6 percent figure. Lodi's unemployment rate, however, was 5.8 percent. The 1997 per capita

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income for Bergen County was \$43,123. Lodi's labor force numbers 11,972.

Bergen County's primary industries are in the service sector, based upon the number of employed individuals (see Table 4-1). Thirty-three percent of county jobs are in the service sector. Manufacturing and retail trade account for 19 percent and 18 percent, respectively. From 1996 to 2006, employment in the service and transportation and public utility sectors is expected to increase substantially at annual rates of 2.4 percent and 1.5 percent, respectively. Employment in manufacturing is expected to decrease at an annual rate of 0.8 percent.

Lodi Borough businesses employed 4,722 people in 1996. The U.S. Census Bureau reports the borough's annual payroll was \$128 million for the 535 businesses located there in 1996. Annual revenue for businesses in Lodi in 1992 was \$379 million for the 326 businesses evaluated (including only the services, wholesale trade, and retail trade sectors). Approximately 600 businesses were located in the borough prior to Hurricane Floyd. About 65 percent were "mom-and-pop" retail stores, 15 percent were medium-size retail and service businesses, and the remainder were large (more than 100 employees) manufacturing and retail businesses. The largest employers in Lodi Borough are listed in Table 4-2. Commercial and industrial property values in Lodi were

Table 4-1 Primary Industries in Bergen County (1996)

Industry Sector	Number of Establishments	Number Employed
Agriculture, Forestry, and Fishing	648	2,315
Mining	7	< 100
Construction	2,739	14,497
Manufacturing	1,936	80,327
Transportation & Public Utilities	1,436	26,547
Wholesale Trade	4,211	58,514
Retail Trade	6,183	77,858
FIRE	2,813	26,447
Services	12,192	139,747
Unclassified	118	< 100
Total	32,283	426,350

Source: U.S. Bureau of the Census

Table 4-2 Major Businesses in Lodi Borough

Major Employers	Industry Sector	Number Employed
Felician College	Services	300*
McCain Ellios Foods, Inc.	Manufacturing	160
K-Mart Corporation	Retail Trade	155
Gibraltar Plastics Corporation	Manufacturing	125
Acme Markets, Inc.	Retail Trade	100
Klein, D & Son, Inc.	Wholesale Trade	97
Kay's Home Centers, Inc.	Retail Trade	90
Atlantic Detroit Diesel	Wholesale Trade	80
Bergen Cable Technologies	Manufacturing	80
Carlyle Custom Convertibles	Retail Trade	77
Blenheim Trading Corporation	Manufacturing	76

Source: Dun and Bradstreet, October 1999 except as noted

*Number of Employees obtained during interview with business

determined from assessed values for a total business property market value of \$243 million.

4.1.2 Historic Flooding and Past Studies

Lodi is located within the southern portion of Bergen County and is traversed from north to south by the Saddle River, a major tributary to the Passaic River. The Saddle River drains 61 square miles of area in New York and New Jersey and travels 23 miles from its headwaters in Rockland County, New York through several Bergen County municipalities. Lodi is sited near the downstream end of the Saddle River just upstream of Garfield and Wallington, which are located at the confluence of the Saddle and Passaic Rivers. Residential and commercial development have extensively encroached upon both banks of the Saddle River. The predominant floodplain areas within Lodi are along Main Street, which parallels the Saddle River, and along a minor tributary of the Saddle River known as Lodi Creek.

The New York District of the U.S. Army Corps of Engineers (USACE) has studied flooding problems within Lodi and proposed a channelization project along the Saddle River and an upstream Saddle River tributary known as the Sprout Brook. In the General Design Memorandum, Phase II Project Design, Lower Saddle River Basin

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Flood Protection Project, 1995, USACE determined that constructing a system of flood control channels would best protect this area from floods with a recurrence interval of up to 150 years. This project has not proceeded towards construction due to unresolved hazardous and toxic waste concerns along the project alignment and the lack of a project cooperation agreement between the Federal Government and the State of New Jersey.

Flood damage mitigation efforts have been undertaken in an effort to reduce Lodi's susceptibility to flood events. Some channel improvements were performed on the Saddle River in 1954 and 1971 following flood events. Also in 1973, Lodi Borough and the Bergen County Mosquito Control Commission made channel improvements on Lodi Creek. In 1982, FEMA, under Section 1362 of the NFIP, purchased six flood-damaged homes along the Saddle River. An additional 10 homes were purchased using State of New Jersey funds under the provision of the Emergency Flood Control Bond Act of 1978.

4.2 Post-Disaster Conditions

Hurricane Floyd losses in Bergen County included 71 businesses destroyed, 195 that received major damage, 137 that received minor damage, and 466 additional businesses that were affected. Bergen County's EMC estimated that total business losses were approximately \$55 million and disaster-related unemployment totaled 1,522. The reconnaissance team conducted detailed studies on Lodi. Other municipalities identified as having substantial damage to businesses included Ho-Ho-Kus, Westwood, Paramus, Garfield, South Hackensack, Hillsdale, Oakland, East Rutherford, Little Ferry, Hasbrouck Heights, Rochelle Park, Saddle Brook, and Park Ridge.

One-thousand fifty businesses in Bergen County teleregistered with FEMA as of November 1, 1999. As of January 13, 2000, 102 of these had been approved for physical loans with SBA. The total value of these loans was \$6.1 million. The SBA approved economic injury loans for 79 businesses for a total of \$2.3 million.

Hurricane Floyd caused severe flooding along the Saddle River, generating new peak records at the U.S. Geological Survey (USGS) Saddle River stream gages located at Upper Saddle River, Ridgewood, and Lodi. The old peak record, generated by a storm locally known as the Election Day flood of November 8, 1977, was exceeded by 0.4 feet at

the northernmost Upper Saddle River gage. The storm also flooded the southernmost Lodi gage once it exceeded the old peak stage by 1.6 feet. Flooding along the Saddle River within Lodi caused extensive damages along Main Street and extended a number of blocks to the east, causing damage to residences and commercial enterprises. Flooded areas were primarily located in the 100-year floodplain, although in some areas flooding extended to areas between the 100-year and 500-year floodplains, according to FEMA's Bergen County FIRM. Several of the borough's damaged structures actually had been constructed or elevated to avoid damages associated with a 100-year frequency storm. Despite these precautionary steps, the structures still suffered 2 feet to 3 feet of flooding over their first floor elevations.

Hurricane Floyd affected a total of 71 Lodi businesses: 10 suffered major damages, 25 received minor damages, and an additional 36 were affected. At a subsequent interview with the Borough Manager on October 15, 1999, he indicated that approximately 100 to 125 commercial enterprises were affected by the flooding within Lodi and approximately 20 suffered severe damages and still remained out of operation.

Surveys were completed with owners/managers of 17 businesses. A majority of business owners/managers interviewed were reluctant to answer questions due to their impression that Federal and State governments had abandoned them and aid for recovery would not be forthcoming. In addition to the 17 owners/managers interviewed, flooding appeared to have a significant impact on at least an additional 31 businesses. Of the 31 additional businesses observed, 12 were clearly closed due to flood damages and at least 8 showed no signs of recovery activities.

Hurricane Floyd affected none of Lodi's largest employers, which are listed in Section 4.1.1. Lodi Borough businesses affected were predominantly in the service, retail, and manufacturing sectors. Most of these were small firms, but some medium-sized businesses were affected as well.

4.2.1 Revenues Lost

Of the 17 business interviewed, 16 responded to the survey question concerning revenue losses. Respondents estimated revenue losses due to flood disruption based on their normal annual, monthly, or weekly

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revenues. Continuing losses due to lower production rates were also estimated. Many businesses were operating at only a portion of their capacity prior to the flood. Of those interviewed, eight were back to full capacity 1 month after the flood, while another eight were operating at 50 percent capacity or less. Causes cited for below-capacity operation included loss of client base, ongoing repair of flood damages, and loss of inventory. Of the 16 businesses interviewed with revenue losses, most expected to be back at full capacity within a 6-month period. However, the eight businesses closed at the time of the survey and showing no signs of recovery activity may be permanently lost to the community.

The sum of lost revenues for businesses interviewed in Lodi within the first month of the disaster was approximately \$750,000. Most businesses predicted lost revenue could not be recovered through increased production rates or sales. If this loss rate, discounting any anticipated insurance payments, is applied to the other businesses observed to be impacted (at least 31), lost revenues within the first month of the disaster could run as high as \$2.2 million.

Assuming that all businesses will recover within the ensuing 6 months, an estimate was made of total revenue losses. Of the businesses interviewed, the total revenue losses for the first month and the ensuing 6 months were estimated to be \$1.7 million. If the same rate of revenue loss is applied to the remaining businesses appearing to suffer flood damages, the total revenue losses within the community would be \$5.1 million. This estimate may be low because it assumes that the eight businesses showing no signs of recovery will reopen and return to 100 percent capacity over the next 6 months.

4.2.2 Annual Taxes Lost

There may be a slight reduction in property taxes associated with reappraisals of commercial property in Lodi affected by Hurricane Floyd. The amount of this reduction would be based on appraised values of specific properties and is therefore impossible to estimate at this time.

Lodi is currently in the early stages of a major redevelopment effort in an area north of Union Street, south of Route 46, and west of Main Street. The borough is concerned that the stigma of the recent flooding, heightened by national media coverage, could threaten the planned development and result in a loss of anticipated future tax ratables.

4.2.3 Numbers of Employees

Based on responses received from the 17 businesses interviewed, 36 jobs were lost at the time of the interview due to below normal operating capacities. Most businesses interviewed hoped to recover within the next few months. However, some had no prediction of when and if they would recover to their full operating capacity. For the purpose of estimating job and wage losses, this report assumes that all of the businesses will recover to full operations within 6 months of the flood.

Total payroll loss during the recovery phase for the 17 interviewed businesses is estimated to be \$360,000. If this is assumed to be representative of the remaining impacted businesses, then payroll losses may be as high as \$1.1 million. This once again assumes that the eight businesses currently showing no sign of recovery will reopen and resume their previous capacity within 6 months. If these 8 businesses are lost, it is estimated that as many as 33 additional jobs would be permanently lost with an associated annual payroll loss of approximately \$700,000.

4.2.4 Structural Property Damage

Structural property damage does not include nonstructural items, such as lights and ceilings, or contents (e.g., computers, forklifts) and inventory.*

Of the 17 businesses interviewed, 7 rent or lease their facilities. Owners/managers of businesses located in these facilities were unaware of structural damage to the property. Of the remaining 10 facilities interviewed, their owners estimated that \$270,000 in structural damages were incurred. If this damage rate is applied over the remaining buildings observed during field visits, the total structural damage in the borough would be estimated at \$1.4 million. This estimate may be low since the eight businesses still closed may have suffered more significant building damages than those interviewed. In addition, the building housing one of the businesses interviewed suffered significant structural damages for which an estimate was unavailable. Of the businesses interviewed, only one carried insurance to cover a portion of the structural damage; therefore, it is impossible

* Structural property consists of building foundations, walls, roofs, and doors.

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to predict the amount of insurance coverage that may be applicable to structural damages.

4.2.5 Nonstructural Property and Equipment Damage

Owners/managers of all 17 businesses interviewed were able to provide estimates of nonstructural property and equipment damage. The total loss reported by the businesses interviewed equaled \$1.35 million. Of this total, approximately \$120,000 will be covered by insurance of which all but \$20,000 of the insured losses covered limousines at two ground transportation service firms. If the 17 businesses interviewed are representative of the population of affected businesses, the total nonstructural property and equipment damage within the borough could be estimated at \$3.3 million. Therefore, the percentage of uninsured losses may be greater in the population than in the sample, causing the estimate for total nonstructural property damage to be low.

4.2.6 Inventory Damage

Owners/managers of all 17 businesses interviewed were able to provide estimates of inventory damage. The total loss reported by the businesses interviewed equaled \$850,000. Of this total, approximately \$200,000 will be covered by insurance. If the 17 businesses interviewed are representative of the population of affected businesses, the total nonstructural property and equipment damage within the borough is estimated at \$2.5 million. All of the insurance coverage was reported by one business, a car dealership, and represents coverage on lost vehicle inventory. Therefore, the percentage of uninsured losses may be greater than in the sample, causing the estimate for total inventory property damage to be low.

4.2.7 Utility-Related Losses

Although several businesses noted loss of telephone service, none indicated that the loss of service had a significant financial impact. No other utility losses of any significance were noted.

4.2.8 Business Reopenings

Of the approximately 50 businesses observed to have suffered from flood damages, only 8 did not exhibit any signs of recovery activities. Of the 17 business owners/managers interviewed, 8 indicated that they were operating at 100 percent capacity within 1 month after the

disaster. Two businesses indicated that they were operating at 50 percent to 75 percent capacity. Seven businesses were operating at 50 percent capacity or less and, of these, four had not resumed any operations at all. As previously noted, eight businesses observed during field visits did not show any signs of recovery activities and remain closed.

4.2.9 Rebuilding or Relocation

All respondents indicated they planned to reopen at their current location. However, three businesses indicated they will ultimately look to relocate to an area outside the floodplain, within the general area but not necessarily in Lodi.

4.2.10 Category and Value of Economic Loss

Table 4-3 summarizes the economic effects of flooding in Lodi. When jobs are lost as a result of catastrophe to a business (as opposed to a strategic move to consolidate positions or locations), staff layoffs typically result in lost revenue. Therefore, payroll losses are embedded in estimates for lost revenue and adding payroll losses to revenue losses would be double-counting the former. This does not trivialize the significance of the loss of these jobs to the employers or to the workers themselves. Indeed, the loss of jobs to any residents of flooded communities makes the business community's full recovery that much more difficult.

4.3 Conclusions

Seventy percent of Bergen County's employed persons work in the service, manufacturing, and retail trade sectors. County unemployment and per capita income figures are better than average for the State. Bergen County has one of the strongest economies in New Jersey.

Hurricane Floyd had an impact on almost 900 Bergen County businesses and damages were substantial. Seventy-one businesses were destroyed and 195 received major damage. Despite the county's strong economy, many municipalities will have to take action to help support the business economy. Municipal officials should consider implementing appropriate recommendations described in Section 3.4.

Between 70 and 100 businesses in Lodi suffered direct impacts due to Hurricane Floyd's flooding. Approximately 850 homes and apartments

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Table 4-3 Summary of Economic Losses – Lodi Borough

Category of Economic Loss	Value of Loss [\$]
Revenue Losses	5,100,000
<i>Payroll Losses</i>	<i>1,100,000</i>
Structural Property Damage	1,400,000
Nonstructural Property and Equipment Damage	3,300,000
Inventory Damage	2,500,000
Total (excluding Payroll Losses)*	12,000,000

* Totals were rounded to two significant digits.

were damaged and an additional 900 homes and apartments were affected. Most residential displacements are temporary, but many of the damaged apartments may be uninhabitable for some time. The resulting displacement of residents may cause some drop in business traffic within the borough. However, most business owners and managers interviewed seemed more concerned that the flooding and ensuing media coverage had created an impression that businesses in Lodi were shut down, causing out-of-town customers to stay away.

Direct revenue losses were no more than 1.6 percent of annual revenues for Lodi businesses. Direct payroll losses were approximately 0.8 percent of annual payroll for the borough's businesses.* Structural property damage was approximately 1.4 percent of real property values of businesses in Lodi. These direct losses are considered a negligible impact to Lodi's business community.

The potential exists that businesses could close in the short- and long-term. Several firms suffered significant damages and the owners/managers interviewed indicated concern over their ability to withstand uninsured financial losses over the long-term. These businesses may be permanently closed. Based on interviews the reconnaissance team

* Annual revenue and annual payroll were based on 1992 and 1996 data, respectively. Although these figures were adjusted to 1999 dollars, they do not account for any economic growth that may have occurred in the community between the time the data was recorded and 1999. Therefore, compared to annual revenue and annual payroll, the actual percentages are expected to be less than reported. In addition, annual revenue was based on only three industry sectors (services, retail trade, and wholesale trade); the percentage of annual revenue lost to the disaster was therefore less than estimated.

conducted, 36 jobs were temporarily lost due to below-normal operating capacities. If this average holds for the remaining businesses impacted by the flooding, temporary job losses could total over 100. Many of these job losses can become permanent if businesses do not open or fail in the future due to the financial impacts associated with the disaster.

All of the owners/managers interviewed indicated that either grants or low-interest loans would assist their recovery efforts and help ensure long-term viability. One business owner suggested that the State's sales tax on repair material, equipment, and replacement inventory should be waived, as a form of assistance. A majority of business owners interviewed expressed negative feelings towards the Federal Government and were reluctant to answer questions, indicating a feeling of abandonment based on their belief that aid from the Federal Government would not be forthcoming.

In addition to general recommendations in Section 3.4, Lodi officials should review community-specific recommendations in the following section.

4.4 Recommendations

- (a) **Implement nonstructural flood mitigation.** The opportunity exists to implement limited nonstructural flood damage mitigation on buildings within the Saddle River floodplain as generally described in Section 3.4.2 (a). Due to the density of development in this area, however, it is most likely impractical to relocate businesses currently situated within the floodplain. However, a number of the buildings observed during the business interviews could possibly be protected through floodproofing and flood barriers or elevation. In addition, a flood warning system and a flood education program could substantially lessen damages to inventory and equipment if a flood were to recur.
- (b) **Implement disaster-resistant development.** A significant opportunity exists for the Lodi Borough to implement disaster-resistant development. A large tract of former industrial/commercial land north of Union Street, south of Route 46, and west of Main Street is currently under consideration for redevelopment. Development contemplated at this location should be guided by the principles of site design for floodplain storage preservation and elevation of structures to or above elevations required by the NFIP and DEP. Lodi should seek funding from programs which fund

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mitigation activities such as buyouts, relocation, and long-term recovery and stimulate private investment by assembling and preparing real estate for key development projects. Disaster-resistant development efforts should also be supported by a flood warning system and public education regarding flood preparedness and mitigation.

- (c) **Implement structural flood mitigation.** The Borough of Lodi also has the opportunity to implement flood mitigation through structural flood control projects. The borough should consider further coordination with the State of New Jersey to implement the Federally-sponsored flood control project described in Section 4.1.2.